

INTRODUCTION

The art of anatomy

The relationship between the visual arts and anatomy is rich and diverse, encompassing illustration of the body for anatomists and the study of anatomy by artists, while artistic creativity itself has a functional neuroanatomical basis. These aspects of the art-anatomy relationship are the subject of this special issue of *Journal of Anatomy*, which arose from presentations at a symposium sponsored by the Anatomical Society of Great Britain and Ireland, held in Oxford in January 2009.

The creation of two- and three-dimensional artefacts requires both manual dexterity and the ability to 'see with the mind's eye'. The first three articles in this issue, which cover the evolutionary perspective and functional neuroanatomy/neuropsychology, approach the subject from this point of view. An article by one of us (GMM-K) sets the scene by considering what we can deduce from existing evidence about the evolution of human artistic creativity. We cannot know the processes of neuronal change that led to the evolution of a human brain with the capacity for artistic creativity and aesthetic appreciation, but both the history of tool making and 'proto-art' artefacts provide clues as to what the evolving brain was able to perceive and to direct the hands to construct. Dahlia Zaidel's article develops this theme by providing a deeper analysis of current understanding of the evolutionary origins of the neuroanatomical basis of art and aesthetics. By describing neuroanatomical studies of brain-damaged artists, she also shows that artistic creativity is not located in a discrete region of the brain, but is a complex, dispersed and flexible neural function. Thomas Jacobsen extends this theme to neuroaesthetics, through a cognitive psychological approach to the concept of beauty. Through functional Magnetic Resonance Imaging data, he introduces studies on neural processing of the perception of beauty.

Anatomical illustration is fundamentally important to the teaching and study of anatomy. Martin Kemp provides a comprehensive overview of the stylistic changes in the illustration of anatomical texts from the fifteenth century to the present day, with some fascinating insights into the relationship between anatomical art and the knowledge of anatomy inherent in the paintings of the Renaissance masters. The early anatomical illustrations also had a profound influence on the first wax modellers, as Alessandro Riva and colleagues show, with special reference to the paintings of Fabricius and others in the 16th and 17th centuries, and to the extraordinarily beautiful wax models made by Clemente Susini in the late 18th-early 19th centuries. Roberta Ballestriero provides further perspectives on anatomical waxes, showing the stark contrast between the style of the London-based Joseph Towne and that of the Florentine artists, and providing a historical perspective on the use of wax for votive and other artefacts from Roman times to the present day. The wax modellers were so accurate in their portrayals

that one of Susini's models of a young pregnant woman has reproduced a cardiovascular defect, presumably the cause of death, analysed here for the first time by Giovanni Mazzotti and colleagues. In her article on anatomical waxes, Roberta Ballestriero confronts the issue of whether these models should be regarded as art or craft. Caroline Wilkinson asks a similar question of her work on facial reconstruction, a process that requires a thorough knowledge of anatomy. However, a degree of artistic licence is appropriate and inevitable where unknowable components of the anatomy are involved, such as details of ears and skin colour. The unpredictable elements are fewer than one might imagine – skeletal detail guides the size of the ear lobes and the form of the soft part of the nose to a surprising extent.

Since the Renaissance, artists have recognised the importance of anatomical knowledge for their own creative work (though this is less universally acknowledged today). The Romanian artist Constantin Brâncuși, before creating the forms of characteristically simple beauty for which he is best known, studied anatomy and made at least two forms of full-sized *écorché* (skinned) figures. Andy Chirculescu and colleagues introduce us to these little-known works and their historical context in a short article. Karen Ingham brings us up to date with a working artist's relationship to anatomy, viewing the relationship between the artist, the human body and the public as an ongoing dialogue. In her article she presents work by artists, including herself, that illuminates contemporary ideas of the body in life, death and disease within the appropriate architectural contexts.

No volume on art and anatomy would be complete without an article that illustrates the use of computer graphics in modern medical imaging. John McGhee's work creates three-dimensional computer-generated images from clinical scan data such as Magnetic Resonance Imaging. He uses the tools of the digital animator to create visually pleasing anatomical images that are accessible to the lay viewer, with the ultimate aim of creating a tool for communication between clinicians and their patients.

We thank all of the contributors to this volume for the very high quality of their articles, to the reviewers who provided very constructive comments and were incredibly generous with their time, and the managing editor, Edward Fenton, for his patience and help, especially with authors not accustomed to the electronic submission system. Finally, we thank the Anatomical Society of Great Britain and Ireland for sponsoring the *Art of Anatomy* symposium, and the contributors, some of whom travelled long distances to give the stimulating talks on which these articles are based.

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